

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/028,742

12/20/2001

Karl Steadman

SRI-4686-2

9913

7590

01/13/2005

Moser, Patterson & Sheridan, LLP
595 Shrewbury Avenue-Suite 100
Shrewbury, NJ 07702

EXAMINER

DEAN, RAYMOND S

ART UNIT

PAPER NUMBER

2684

DATE MAILED: 01/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/028,742	Applicant(s) STEADMAN ET AL.	
	Examiner Raymond S Dean	Art Unit 2684	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 December 2001 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>0504</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see amendment, filed September 7, 2004 with respect to Claims 16 - 19 have been fully considered and are persuasive. The objection of Claims 16 - 19 has been withdrawn.
2. Applicant's arguments with respect to claims 1 – 2, 6 – 8, 10, and 12 - 19 have been considered but are moot in view of the new ground(s) of rejection. Examiner respectfully disagrees when the applicants' assertion on Page 7 lines 3 – 4 of the Remarks that Proctor does not teach or suggest that the wireless network architecture is ad-hoc. Proctor further teaches a peer-to-peer or ad-hoc network comprising wireless nodes and an access point. When the nodes communicate with one another in said peer-to-peer or ad-hoc network said access point becomes a relay point or repeater. The access point of Proctor has an antenna array that is used to provide optimal propagation when said access point is used to relay data from a first node to a second node (See section 0019 of Proctor). An updated search also rendered the prior art reference Redford et al. (US 2003/0126298). Redford teaches a mobile wireless access point that enables wireless devices to communicate in a peer-to-peer network, which is an ad-hoc network (See section 0106 lines 14 – 16 of Redford). Proctor and Redford both teach a peer-to-peer or ad-hoc network comprising wireless devices or nodes and an access point thus it would have been obvious to one of ordinary skill in

the art at the time the invention was made to use mobile capability of the access point taught in Redford in the access point of the peer-to-peer network of Proctor for the purpose of providing internet and local area network access to users at temporary locations, remote locations, events, and the like without installing an expensive and complex infrastructure as taught by Redford.

3. Applicant's arguments filed September 7, 2004 regarding Claim 3 have been fully considered but they are not persuasive.

Examiner agrees with the Applicants' assertion that on Page 10 Fourth Paragraph of the Remarks "The Examiner's attention is directed....". Locher, however, teaches a list of identifiers associated with unintended sources (Column 5 lines 21 – 25, the jammer file is the list of identifiers associated with unintended sources).

Proctor and Locher both teach an adaptable antenna array for interference suppression thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the jammer file of Locher in the access point of Proctor for the purpose of creating an access point with an adaptable antenna array that maintains optimal and reliable radio links in the presence of numerous interference sources.

4. Applicant's arguments filed September 7, 2004 regarding Claims 4 – 5, 9 and 11 have been fully considered but they are not persuasive.

Examiner agrees with the Applicants' assertion on Page 12 First Paragraph of the Remarks "The Examiner's attention is directed....". Youssefmir, however, teaches the step of weighting the received electromagnetic signal (Column 3 lines 45 – 50).

Proctor and Youssefmir both teach an adaptable antenna array for interference suppression thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use weighting method of Youssefmir in the access point with an adaptable antenna array for the purpose of adjusting the phase and amplitude of each of the signals received at the antenna array elements of said access point thus allowing the signals of interest to be selected while minimizing the interference.

Youssefmir further teaches a weighting module having a complex weight associated therewith in communication with at least one antenna element (Column 6 lines 12 – 22, the signals are weighted thus there is an inherent weighting module) and a determination module in communication with the weighting module, the determination module determining the complex weight used to generate a null in the receive antenna pattern at a location determined in response to the location of the unintended source (Column 3 lines 20 – 34, Column 6 lines 22 – 32).

Proctor and Youssefmir both teach an adaptable antenna array for interference suppression thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use weighting and determination module of Youssefmir in the access point with an adaptable antenna array for the purpose of adjusting the phase and amplitude of each of the signals received at the antenna array elements of

Art Unit: 2684

said access point thus allowing the signals of interest to be selected while minimizing the interference.

Youssefmir further teaches a combination module to combine the received signal (Column 6 lines 12 – 16, the adaptive antenna processing elements are the combination module).

Proctor and Youssefmir both teach an adaptable antenna array for interference suppression thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the combination module of Youssefmir in the access point with an adaptable antenna array for the purpose of providing an estimate of a signal received from a node thus allowing the quality of said signal to be determined.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1 – 2, 6 – 8, 10, and 12 – 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Proctor, JR. (US 2003/0048770 A1) in view of Redford et al. (US 2003/0126298).

Regarding Claim 1, Proctor teaches a method of adaptively controlling an antenna pattern of a wireless communications device in a packet-switched wireless ad-hoc communications network (Figure 1, Abstract, Section 0019, when the nodes communicate with one another in a peer-to-peer network, which is an ad-hoc network, said access point becomes a relay point or repeater, said access point has an antenna array that is used to provide optimal propagation when said access point is used to relay data from a first node to a second node), the method comprising the steps of: receiving an electromagnetic signal over the packet-switched wireless ad-hoc communications network by a wireless communication device having a receive antenna pattern (Section 0019, Section 0030 lines 4 – 6, Section 0039 lines 1 – 5); determining if the electromagnetic signal is from an intended or unintended source (Section 0039 lines 5 – 12, the unintended source is the unknown source); and adapting the receive antenna pattern if the electromagnetic signal is from an unintended source (Section 0039 lines 5 – 12, the pattern changes as the antenna steps through a series of directional angles).

Proctor does not teach a mobile wireless communication device having a receive antenna pattern.

Redford teaches a mobile wireless communication device (Section 0106).

Proctor and Redford both teach a peer-to-peer or ad-hoc network comprising wireless devices or nodes and an access point thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use mobile capability of the access point taught in Redford in the access point of the peer-to-peer network of

Art Unit: 2684

Proctor for the purpose of providing internet and local area network access to users at temporary locations, remote locations, events, and the like without installing an expensive and complex infrastructure as taught by Redford.

Regarding Claim 2, Proctor in view of Redford teaches all of the claimed limitations recited in Claim 1. Proctor further teaches comparing an identifier of the source included in the electromagnetic signal to a list of identifiers associated with intended sources to determine that the source is an intended source (Figure 1, Section 0039 lines 5 – 9, the identifier of the source is compared to identifiers of known or intended sources in the table (25), if it is in the table it is a known or intended source and if it is not in the table it is an unknown or unintended source).

Regarding Claim 6, Proctor in view of Redford teaches all of the claimed limitations recited in Claim 1. Proctor further teaches an unintended source is a cordless telephone (Section 0004 lines 9 – 17, a cordless telephone falls under the category of other types of radio equipment that operate in the same unlicensed radio frequency band as the wireless LAN).

Regarding Claim 7, Proctor in view of Redford teaches all of the claimed limitations recited in Claim 1. Proctor further teaches an unintended source is a node in the network (Section 0030 lines 1 – 4, the wireless LAN comprises the nodes thus said nodes operate in the unlicensed radio frequency band, this means that the nodes can also be unintended sources).

Regarding Claim 8, Proctor teaches an apparatus for adaptively controlling an antenna pattern of a wireless network device in a packet-switched wireless ad-hoc

Art Unit: 2684

communications network (Figure 1, Abstract, Section 0019, when the nodes communicate with one another in a peer-to-peer network, which is an ad-hoc network, said access point becomes a relay point or repeater, said access point has an antenna array that is used to provide optimal propagation when said access point is used to relay data from a first node to a second node), the apparatus comprising: first and second antenna elements each receiving an electromagnetic signal from a source over the packet-switched wireless ad-hoc network and forming a receive antenna pattern (Section 0019, Section 0030 lines 4 – 6, Section 0039 lines 1 – 5, the access point has an antenna array which means there will be at least two elements); a verification module, in communication with the antenna elements, receiving the signal from the antenna elements and verifying whether the source of the signal is an intended or unintended source (Section 0039 lines 5 – 9, there is verification by table look up to determine if the source is known (intended) or unknown (unintended) thus there is an inherent verification module); and a controller in communication with at least one of the antenna elements and with the verification module to adaptively control the receive antenna pattern in response to a determination that the source of the electromagnetic signal is an unintended source (Section 0034 lines 5 – 7, Section 0039 lines 5 – 12, the pattern changes as the antenna steps through a series of directional angles).

Proctor does not teach mobile antenna elements.

Redford teaches a mobile access point (Section 0106).

Proctor and Redford both teach a peer-to-peer or ad-hoc network comprising wireless devices or nodes and an access point thus it would have been obvious to one

Art Unit: 2684

of ordinary skill in the art at the time the invention was made to use mobile capability of the access point taught in Redford in the access point of the peer-to-peer network of Proctor for the purpose of providing internet and local area network access to users at temporary locations, remote locations, events, and the like without installing an expensive and complex infrastructure as taught by Redford.

Regarding Claim 10, Proctor in view of Redford teaches all of the claimed limitations recited in Claim 8. Proctor further teaches wherein the electromagnetic signal contains information indicative of a specific network protocol (Figure 2A, Figure 2B, Section 0035 lines 1 – 9, Section 0039 lines 3 – 5) the information being used to verify the source of the signal as an intended or unintended source (Section 0039 lines 5 – 9).

Regarding Claim 12, Proctor in view of Redford teaches all of the claimed limitations recited in Claim 8. Proctor further teaches wherein the apparatus is a wireless network card (Section 0033 lines 1 – 9, the access point consists of: transmitter, receiver, and network interface circuitry, said circuitry will reside on a printed circuit card, which is an inherent element of a typical access point in a wireless LAN).

Regarding Claim 13, Proctor in view of Redford teaches all of the claimed limitations recited in Claim 8. Proctor further teaches wherein the unintended source is a cordless telephone (Section 0004 lines 9 – 17, a cordless telephone falls under the category of other types of radio equipment that operate in the same unlicensed radio frequency band as the wireless LAN).

Regarding Claim 14, Proctor in view of Redford teaches all of the claimed limitations recited in Claim 8. Proctor further teaches wherein the unintended source is a node in the network (Section 0030 lines 1 – 4, the wireless LAN comprises the nodes thus said nodes operate in the unlicensed radio frequency band, this means that the nodes can also be unintended sources).

Regarding Claim 15, Proctor teaches in a packet-switched wireless ad-hoc communications network, a method for use by a wireless communication device having a plurality of antennas to control a direction of communication over the network (Figure 1, Section 0019, Section 0030 lines 4 – 6, Section 0039 lines 5 – 12, when the nodes communicate with one another in a peer-to-peer network, which is an ad-hoc network, said access point becomes a relay point or repeater, said access point has an antenna array that is used to provide optimal propagation when said access point is used to relay data from a first node to a second node), the method comprising the steps of: cooperatively producing by the plurality of antennas of the wireless communication device an antenna pattern for exchanging electromagnetic signals over the packet-switched wireless communications network (Figure 1, Section 0030 lines 4 – 6, Section 0039 lines 5 – 12); and adapting the antenna pattern produced by the plurality of antennas in response to an electromagnetic signal received over the packet-switched wireless ad-hoc communications network to control a direction of subsequent communication over the network (Section 0019, Section 0039 lines 1 – 12, the pattern changes as the antenna steps through a series of directional angles).

Proctor does not teach a mobile wireless communication device with a plurality of antennas.

Redford teaches a mobile wireless communication device (Section 0106).

Proctor and Redford both teach a peer-to-peer or ad-hoc network comprising wireless devices or nodes and an access point thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use mobile capability of the access point taught in Redford in the access point of the peer-to-peer network of Proctor for the purpose of providing internet and local area network access to users at temporary locations, remote locations, events, and the like without installing an expensive and complex infrastructure as taught by Redford.

Regarding Claim 16, Proctor in view of Redford teaches all of the claimed limitations recited in Claim 15. Proctor further teaches a receive antenna pattern (Figure 1, Section 0030 lines 4 – 6, all antennas have transmit and receive patterns thus this is an inherent characteristic).

Regarding Claim 17, Proctor in view of Redford teaches all of the claimed limitations recited in Claim 15. Proctor further teaches reducing noise in subsequently received electromagnetic signals (Section 0012).

Regarding Claim 18, Proctor in view of Redford teaches all of the claimed limitations recited in Claim 15. Proctor further teaches increasing a signal-to-noise ratio of transmitted electromagnetic signals (Section 0012, signal-to-noise ratio falls under the category of other comparable measure).

Regarding Claim 19, Proctor in view of Redford teaches all of the claimed limitations recited in Claim 15. Proctor further teaches reducing an effect of interference from an interfering source (Abstract, Section 0012, the direction with the best received signal metric is the direction with minimal interference).

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Proctor, JR. (US 2003/0048770 A1) in view of Redford et al. (US 2003/0126298) as applied to Claim 1 above, and further in view of Locher et al. (5,940,033).

Regarding Claim 3, Proctor in view of Redford teaches all of the claimed limitations recited in Claim 1. Proctor further teaches comparing an identifier of the source included in the electromagnetic signal to a list of identifiers to determine that the source is an unintended source (Section 0039 lines 5 – 9, the identifier of the source is compared to identifiers of known or intended sources in the table (25), if it is in the table it is a known or intended source and if it is not in the table it is an unknown or unintended source).

Proctor in view of Redford does not teach a list of identifiers associated with unintended sources.

Locher teaches a list of identifiers associated with unintended sources (Column 5 lines 21 – 25, the jammer file is the list of identifiers associated with unintended sources).

Proctor in view of Redford and Locher teach an adaptable antenna array for interference suppression thus it would have been obvious to one of ordinary skill in the

Art Unit: 2684

art at the time the invention was made to use the jammer file of Locher in the access point of Proctor in view of Redford for the purpose of creating an access point with an adaptable antenna array that maintains optimal and reliable radio links in the presence of numerous interference sources.

8. Claims 4 – 5, 9, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Proctor, JR. (US 2003/0048770 A1) in view of Redford et al. (US 2003/0126298) as applied to Claims 1, 8 above, and further in view of Youssefmir et al. (6,141,567).

Regarding Claim 4, Proctor in view of Redford teaches all of the claimed limitations recited in Claim 1. Proctor in view of Redford does not teach the step of weighting the received electromagnetic signal.

Youssefmir teaches the step of weighting the received electromagnetic signal (Column 3 lines 45 – 50)

Proctor in view of Redford and Youssefmir teach an adaptable antenna array for interference suppression thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use weighting method of Youssefmir in the access point with an adaptable antenna array for the purpose of adjusting the phase and amplitude of each of the signals received at the antenna array elements of said access point thus allowing the signals of interest to be selected while minimizing the interference.

Regarding Claim 5, Proctor in view of Redford and in further view of Youssefmir teaches all of the claimed limitations recited in Claim 4. Youssefmir further teaches creating a null in the receive antenna pattern at a location determined in response to the location of the unintended source (Column 3 lines 20 – 34).

Regarding Claim 9, Proctor in view of Redford teaches all of the claimed limitations recited in Claim 8. Proctor in view of Redford does not teach a weighting module having a complex weight associated therewith in communication with at least one antenna element and a determination module in communication with the weighting module, the determination module determining the complex weight used to generate a null in the receive antenna pattern at a location determined in response to the location of the unintended source.

Youssefmir teaches a weighting module having a complex weight associated therewith in communication with at least one antenna element (Column 6 lines 12 – 22, the signals are weighted thus there is an inherent weighting module) and a determination module in communication with the weighting module, the determination module determining the complex weight used to generate a null in the receive antenna pattern at a location determined in response to the location of the unintended source (Column 3 lines 20 – 34, Column 6 lines 22 – 32).

Proctor in view of Redford and Youssefmir teach an adaptable antenna array for interference suppression thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use weighting and determination module of Youssefmir in the access point with an adaptable antenna array for the purpose of

Art Unit: 2684

adjusting the phase and amplitude of each of the signals received at the antenna array elements of said access point thus allowing the signals of interest to be selected while minimizing the interference.

Regarding Claim 11, Proctor in view of Redford teaches all of the claimed limitations recited in Claim 8. Proctor in view of Redford does not teach a combination module to combine the received signal.

Youssefmir teaches a combination module to combine the received signal (Column 6 lines 12 – 16, the adaptive antenna processing elements are the combination module).

Proctor in view of Redford and Youssefmir teach an adaptable antenna array for interference suppression thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the combination module of Youssefmir in the access point with an adaptable antenna array for the purpose of providing an estimate of a signal received from a node thus allowing the quality of said signal to be determined.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 2684

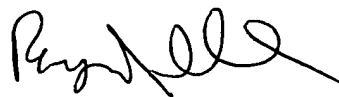
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond S Dean whose telephone number is 703-305-8998. The examiner can normally be reached on 7:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay A Maung can be reached on 703-308-7745. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


NAY MAUNG
SUPERVISORY PATENT EXAMINER


Raymond S. Dean

Application/Control Number: 10/028,742
Art Unit: 2684

Page 17

January 4, 2005